

METHODOLOGICAL ISSUES ARISEN FROM THE INVOLVEMENT OF SOCIOLOGISTS IN THE DOMINO PROJECT, A “COMPANION MODELLING” APPROACH: INTERESTS AND LIMITS.

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The Domino project: stakes of an “involved” research

To tackle land use management systems, it is necessary to consider the interactions between the ecosystems and society lived in, and their evolution under external or internal factors (Blandin *et al.*, 2004; Fraser *et al.*, 2003). Management systems are complex because of the multiplicity of interactions between stakeholders, between biological and ecological entities which compose the environment, and between stakeholders and their environments. These interactions are in a perpetual evolution that reinforces all the more the uncertain character of these systems.

The principles of decentralized management of natural resources adopted by more and more countries must take into account the variety of stakeholders. Each one has his own point of view on management resources according to their uses and stakes but also according to their scale of action or involvement. Sometimes complementary, they are more often conflicting. In such a complex context, how do managers of these systems succeed in making the “good” decision?

A lot of tools exist to represent land use dynamics including partially their impacts on natural resources (cf. CLUE models; Bellman, 2000, Parker *et al.*, 2003) but there are far too few of them understandable by stakeholders. Helping them to develop a sustainable management of their environment requires to tackle the interactions between different ecological levels of organisation just as well as social ones (Holling, 2001).

The Domino project (Multisite object approach for the study of organisation levels interactions) is focused on land use allotment processes in Senegal and Reunion Island. Stake is important. It is a matter of (i) showing that the building of a land use allotment model can integrate interactions between individual stakeholders and institutions whose scale of involvement are different (ii) and questioning the genericity of models developed on the same issue in different contexts : an overseas region of France and an African country.

The control of land use is a major issue in Reunion Island. With a 33% demographic growth expected over twenty years (950 000 inhabitants in 2020 against 710 000 in 1999), about 7 000 ha must be mobilized to meet the demand for housing). But according to assessments presented in July 2005 during “Les cahiers de l'agriculture” seminar, land reserves represent only 1 100 ha. How to implement a land use policy for a sustainable regional development which will allow for the limited nature of the island and the growing needs of activities using more and more land? This is the main issue of all discussions about Reunion regional development. Within this context, in spite of development purposes or more simply the preservation of farm network (mainly cane, breeding and diversification), the land that was devoted to agriculture and natural spaces is gradually eroded by the too often anarchical urbanization. The Domino project aims at representing interactions between urban, farm and natural land use. For that, it is necessary to consider stakeholders and institutions (areas of involvement) –district/region, inter-district, “commune” - who participate in Reunion regional development and their interactions.

In Senegal, five rural communities around the Guiers Lake compose our field study. The coexistence of several land uses in synergy or in opposition is the main issue. There is potential conflict between irrigated agriculture and breeding because access to grazing is compromised by the rapid growth of irrigation infrastructures. Industrial and agricultural discharges damage water quality with an impact on fishing resources. The drinking water supply to urban populations that the Senegalese state tries to promote brings about more competition on the quantity of water. Furthermore, there is a variety of land tenure

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(modern rights, traditional access, donation, loan, inheritance, purchase, rent) that does not simplify secure land use. Several cases of land use conflicts appear dealing with multi-allotment of a single parcel, allotments to non identified persons, difficulties to close down an allotment. There is no rural cadastre. The lake attracts more and more peoples, because, in this Sahelian country, land without access rights to water is worthless. The Rural Council, which is the deliberating instrument of the Rural Community since 1972, is the one allowed to manage lands of the “zone de terroir”. Since the law n° 96.07, under the control of the prefect, it has been able to allot them, to Rural Community members who exploit these lands. Management of natural resources and the environment, urban development, health, education and regional development are one of the nine new competences transferred to the Rural Council. But its actions are nevertheless limited by the weakness of its financial and technical means. Small farmers’ access to land is becoming more and more difficult because of the increase in fallow land, the deterioration of soil fertility, and the intensification of land use competition with the arrival of big national or foreigner farmers who are rich enough to support prohibitive exploitation costs. As inequalities are increasing, the main issue is how to assure a sustainable coexistence of those varied rural systems and keep the viability of small farmers systems in the Guiers lake area?

The Domino project (*Démarche Objet Multisite pour l'étude des Interactions entre Niveaux d'Organisation*⁴) proposes to develop a “participatory modeling” approach to help stakeholders to think about land management to increase the resilience of socio-ecological systems concerned. Our approach is based on 3 hypotheses.

- In order that the model should be considered as legitimate and suitable, they must be involved in the modeling process right from its beginning.
- Participants’ points of view are exchanged thanks to the model used as a media tool.
- The explanation of hypotheses used to build the model and the interactions of management system elements in a multi-agents system are helpful to test the prospective scenario of management.

In Domino, researchers of several disciplines and stakeholders (producers of data, managers or decision-makers) together build a model used as a media tool (Vinck, 1999). This modeling practice tries to explain and to encourage information exchanges between protagonists. It was developed by the ComMod group and others researchers (ComMod, 2003; Walker et al., 2002; Argent and Grayson, 2003) and called “Companion Modeling” approach. Companion Modeling is a scientific posture which characterized research “involved” in the Development. This approach is based on continuous cycles between “field work => modeling => simulation => field work, etc”. In this “post-normal” (Funtowicz and Ravetz, 1993) approach, researchers accompany stakeholders involved in negotiation process. Because they are facing complex situation, researchers are less interested in the quality of the choice obtained than in the quality of the process leading up to it. The sociologist in this approach will focus on the sociological stakes of researchers and stakeholders’ uses of models, and social impacts of the modeling process on the social system in which participants are embedded. By participating in the experiment, the sociologist is also one of them. Which role does he take in the dynamic he analyzes? What do other participants expect from the sociologist’s involvement? What are the limits of his exercise?

1. Sociologists involved in the Domino: observer or participant?

In the Domino project, sociologists are involved in both fields. They play different roles. As the other experts, sociologists’ skills are expected to give their viewpoints on social reality. In Reunion Island, they participated in the identification of key-stakeholders concerned in several negotiation processes about resources management. With the classical tools of sociology used to collect information, they described the interactions of stakeholders involved in the management of rural territories at different levels (from “commune” to region). Communal charters of rural development were initiated by the Agriculture Chambers. They aimed at defending the place of rural land use in Communal development plans in construction nowadays. To this end, all the stakeholders of rural area are rallied to identify the agriculture stakes, their objectives and needs within the next 15 years, and translate them into projects and concrete

⁴ Multi sites approach to study interactions between social and ecological levels of organization.

actions to reach the aims expressed. This approach is not laid down in the regulations. Therefore, only local social control may allow them to be respected by each signatory. Other studies have been done to analyze the socio-political context in which regional development decisions are made. In the area of lake Guiers, a first socio-political analysis has shown that stakeholders are numerous and hybrids; hybrids, because they often belong to several institutions. And one institution gets its own point of view of land use management by referring to norms corpus concerning sometimes modern systems and other times traditional ones. In this context, decentralization appears as the result of compromise between two systems of reference: the “traditional” and the “modern” one. The latter is characterized by a production of norms (administrative, juridical,...) and their control of the law. This situation leads to a variety of negotiation spaces where State representatives and local ones can exchange for example about application criteria of all juridical productions (law of National Domain, Water Code, ...).

The modeling process is supposed both to integrate the different viewpoints of land allotment and to be helpful for a schematization of the complexity of the system represented. With the process of schematization, each participant has to define clearly his stakes and their main components to put in the model. In this approach, sociologists are called to participate in the building-up of an analysis grid of social reality in relation with ecological dynamics. But they can not stop on this point! They can not limit their involvement in the process of collecting social information, as other researchers do in their thematic. The co-construction of the model is one of the stakes of the research because this tool is supposed to reveal the ability of all Domino protagonists -researchers and stakeholders- to build a common vision of the complex system they are dealing with. Sociologist's skills are also expected to give their viewpoints on the ComMod approach in process. By developing a rigorous analysis of participants' interactions, he must reveal whether the model obtained is just a collection of individual stakes or the result of a progressive integration of hypotheses explained, appropriated and enriched by members of the group. The aim is to build a maieutics of collective research which is also a social maieutics (Verret, 1995). With his knowledge of the stakeholders' stakes, the sociologist enlightens their positions, deciphers their strategies, and reveals origins of tensions or alliances occurred along the modeling process. Because the ComMod approach is also to increase stakeholders' capabilities on management system, the modeling process should help them to tackle technical and ecological issues of land allotment in order to make their understanding of social issues easier. Therefore, the sociologist can not limit his analysis to a neutral description of the social system. As the other protagonists he participates in an involved research which is supposed to modify, to rationalize social behaviors or to induce new ones. He participates in the unfolding process, in the circulation of information. Doing so, he takes part in the modification of social interactions and networks between participants about their environment.

As a real participant of the process, he has to pay attention to the reforming willingness or the social project at the origin of the tool. Thus, the issue is the appropriateness between the companion modeling approach and its social uses. Whereas this is a main issue, it is rarely tackled because collective dynamic makes it difficult to question the building process in progress. Partners of the project are engaged in a human and scientific adventure where innovation exalts minds. Participants' action and adhesion legitimate the project and strengthens their relations in return. Therefore, not to strive for the collective is a sort of betrayal. Critics about the methodological costs of the approach or the reality of the stakeholders' involvement are unspeakable and unthinkable. There is a huge effort to transmit our scientific knowledge to non scientific people. But this long-term effort is not always crowned with success because decision-makers are often engaged in the short-term. And nobody can say in advance whether they will support the modeling process or not. They are involved in institutional stakes which often need immediate realization. Their time is not one of research. As for the beneficiaries of the project, it is plausible that their expectations are not expressed in the same way as the researchers have done it. Nevertheless, expectations of the target population should be in the centre of an involved research.

Straight from the great principles of participation, this approach aims at empowering stakeholders. But, behind the concept of participation there are a lot of drifts. For example, there is what is called a “false participation” (Lavigne Delville, Selamna & Mathieu, 2000), which is a participation wherein all participants are just informed but they do not really take part. The identification of all stakeholders concerned by the issue is crucial but not sufficient because some may have been forgotten. Thanks to the

iterative character of the modeling process and the principle of exchange of clarified information between all partners, the ComMod approach assumes that it should avoid this pitfall. In order to have real participation, it is necessary that all participants do not consider the process as imposed upon them, as if it was already tightly-structured. That is the reason why the modeling process must be judged as legitimate by all the participants. So that, they will be prone to accept the relevance of others viewpoints on decision-making about land use allotments. Without the legitimacy established by the faith in other partners during the co-construction of the “field model”, the interactions between different levels of organization will not be encouraged or even be possible. For the sociologists involved in the Domino project, the analysis of social changes leading to the stakeholders’ participation is an essential issue⁵.

Through his participation, the sociologist involved in Domino is sharing with the other protagonists a common microcosm in construction (Herreros, 2002). Here, the aim is the creation of a space of mutual interest within which there is a circulation of knowledge between persons coming from different horizons. And this exchange invents a co-construction of new knowledge (Alkrich, Callon, Latour, 1988). Here is what seems to be the hardest part of the companion modeling approach. Because at each step of the process, the approval of all the participants is needed, which may make the collective progress heavy or even hinder it for a while. In Reunion Island, some stakeholders are considered as central in the description of the dynamics to model. But the modeling process lays down a schematization. The simplification needed is sometimes difficult to be understood by the participants who daily face the variety and the complexity of the system they work in. The abstraction required in the models conceptualization process is not obvious. It entails progressive adjustments of the different parties. Nevertheless, this minute work of step by step negotiation/explanation is essential for the participants to join the “modeler” group. Little by little, the model becomes a collective one. As they appropriate the model, they will justify choices made in front of a third party during the discussions about prospective scenarios of regional development.

The modeling process should give to stakeholders tools, techniques or information about the area of possibilities. The sociologist, both observer and participant, must accompany them in their perception of their territory future. Why? Because, these landscapes are symbolically invested, economically managed and politically surrounded.

2. What are the interests of the sociologists’ contribution to the project?

The issue of the relevance of sociologists’ contribution to that type of project is questioned. The modeling process - from the conceptualization to the computing implementation of a common model to simulate reality - may be understood as a reification of tools not reached in classical methodological devices. There is a great danger in considering these artifacts as facts!

From a classical sociology viewpoint (like in other disciplines), the pluridisciplinary exchanges can only end in a minima consensus about a vulgate little favorable to its theoretical ambitions. In fact, the model co-construction assumes that with the iterative process, a common knowledge will emerge. To reach this goal, each one must understand that he has to renounce a part of his discipline truth, his common sense. Therefore, we had to grieve for the hegemony of social sciences to build a sharing representation of a social issue to be tackled and solved. Even if the complexity of the technical character of the approach may be intellectually stimulating, there is still a risk. The danger is that the approach falls into a sort of social or computing engineering where explanation and clarification of the control of the system parameters will be forgotten.

Sociological analysis of social phenomenon may be disturbed by instrumentation and demand to validate processes in progress. There is a risk that they transform our role and consider us as a sort of expert of

⁵ The assessment of social impacts lead by Domino project on public decision-making about land uses allotments is a main-line research. Others research teams are developing ComMod approach on renewable resources management experiments. Because this issue is essential to be tackled they have built a common research project on this topic. It started in 2006 and will end in 2008. Domino is one of the study-fields selected.

the social thing. So, we need to pay attention to the caution given by the sociologist to the scientific project and to the decision-makers' uses of the model. We do not forget that they are engaged in dialectic of the general interest but may be reluctant faced with issues dealing with their "natural and not conscious" domination. Their participation in the experiment cannot remain neutral. Thus the identification of key-persons must be questioned. The sociologist can also be helpful to describe the antagonism of logics expressed or not and tackle some interactions observed. In the area of the Guiers Lake, we assist in a superposition of different logics: technocrats' planning ones, farmers' organization ones, land market ones (even if it is not legal) and those from tradition.

In another register linked with a pluridisciplinary approach, the social sciences researcher acts in the first steps of the modeling process. He is asked to give information about the social context, the interactions between stakeholders, their force and weakness, mechanisms of decision-making ... He knows he has to make partners aware of the social complexity which of course is multiform. He will try to convince them that it is necessary to take into account other aspects of social reality (cultural, religious, symbolic, political ...) whereas they could consider them as secondary in front of issues related to resources management or regional development. By interacting with other participants, he contributes towards the inscription of a technical culture into a wider sociability. The men and women involved in Domino are not only favoured professionals. They are coming from varied horizons and are sharing the modeling adventure. In Reunion Island like in Senegal, the group is composed by researchers from different disciplines, different French and Senegalese institutions (Agronomic research institutes, Universities ...), and agents of public administrations or assimilated and the members of the civil society directly interested in regional development.

Sociological analysis may be reduced in a modeling process because of the schematization demanded. Is this reduction insuperable? Why do we participate in an experiment that French sociology in the 70's would have considered as selling our soul to the Devil? First, we think that sociologists are "builders of social reality". It seems obvious in an applied and involved research. But it is always the case because as we describe social objects we transform them, we impact them (Giddens, 1986) but we do not control the effects of our analyses. Then, we claim our posture and do not consider our involvement as a betrayal. Doing so, we accept our historical heritage coming from the founders of French and American sociology.

The ambition of sociologists' participation in modeling working groups is to help stakeholders to go beyond the obvious framework in order to enrich models. We obviously aim at an accurate description of social reality but we just come as close as possible! The role of social sciences is to be as relevant as possible to describe social context in which the target population is embedded.

We need to go beyond the classical debate between commitment and distance in order to take on a status of "social maker", to suggest a pragmatic and humanist scientific involvement. There will be an opportunity both to give more importance to demonstration practices and to participate in the transformation of the modeling process into a real social language. Domino is positioned in sustainable development issues (even if this concept is polysemic and debatable), which are ontologically an ideological bias and a viewpoint of the world. The sociological analysis would be naïve (Sirinelli, 2002) if it masked that the ComMod posture may imply social changes.

We suggest a pragmatic perspective marked by "a resort to an ethical link and a utopian realism" (Herrerros, 2002). To reach the success, the ComMod approach needs the meeting of two elements. First, it is necessary to have a close look at scientific hypotheses made by each others. Then, each participant must be convinced that the lights given by others (experts or stakeholders) are well founded with a priori no prominence of one upon the other. The stake is to build a real cooperation, freely agreed, between Domino members about expected results and their appropriation in order to "secure" their future with lesser social costs. Spaces for discussion and negotiation are created in the project in order to reduce power imbalance and its effect in terms of symbolic violence. This cooperation, this willingness to reach this common aim – the management and the control of a sustainable environment – is based on the crafting of a tight and horizontal social link which should favour communication and exchange with a reduction of the effects of knowledge or discourse supremacy. This is what we call an ethic of social link. We must lean on existing synergies, increase their standing and make the most of the project.

Utopian realism consists in clearly controlling and defending the methodological contribution of sociology. Especially by insisting on the know-how developed empirically by this discipline over decades, by giving them to Domino participants who share research objectives and use of artifacts purposes. To really participate in the modeling process, the sociologist must tackle modeling tools and understand other discipline prospects and stakes. On the one hand, he must be firm on what he feels essential to transmit from his involvement in the project. On the other hand, from a pedagogical viewpoint, he must be understandable by other participants even if he has to give up part of his conceptual or problematic jargon. He takes part in the crafting of a common view thanks to exchanges and links developed where cooperation is the key word. In this framework, there is no need to be dressed as a “militant”.

Finally, the Domino project gives sociologists an opportunity to test life-size theories they have contributed to build sociology. In fine, the main stake of sociologists' contribution to a companion modeling experiment is the theoretical fit to field reality. The bet is more social than scientific or intellectual. It can lie in their participation in the collective involvement instead of developing innovation in social sciences. The sociologist does not know better than other participants what is “good” or “fair” for regional development. But, thanks to his methodological options, to his involvement in the situation, he gives his contribution to an artifact that may be useful for stakeholders. This is the price of his credibility. Credibility as a researcher, because the reality he tries to describe may refute his analysis. Credibility as a member of the project, because he is involved, like other participants, in the success of the project.

3. But pragmatism causes some problems...

The sociologist involved is faced with the reality of others participants of the modeling process. This pragmatism questions his posture, his link with Domino protagonists and population concerned by the ComMod approach.

- To sociologists:

Usual marks to collect information developed in the loneliness of the sociologist are confused. The sociological process assumes that “people do not know the whole meaning of their actions” (Bourdieu, 1980; Bourdieu, 1992). The companion modeling approach requires to explicit at each step of the process social practices which puts in the balance again the Durkheim's principle of the social researcher's exteriority. The same requirement is seeable in the analysis process of field information that may cause interference with the consensus searched in multi-disciplinary and multi-stakeholders interactions. The sociologist like all the participants to the modeling process is a holder of knowledge not different from the others scientific or “layman” ones. Then, he occupies both an interiority position (as a member to the modeling process) and an exteriority ones (as an observer who analyses the process in progress) which put him in an ambiguous situation in front of others participants and his disciplinary pairs. Is there a risk to be both judge and judged? To answer the demands of sociology, he needs both to have a reflexive analysis of his own involvement in the modeling process and to help others participants to became aware of the complexity of worlds reduced in the model. Moreover, in modeling process with scientific knowledge put in common to describe the complex system, is there a risk of a scientific reification of social reality? The explanation of model hypotheses and their debate by a restricted group of users should avoid this pitfall!

- To others protagonists (stakeholders and others researchers)

The main difficulty is to take into account multiple time steps and scales, varied viewpoints and to integrate, consult, negotiate, or excluded some all along the modeling process. The sociological analysis should be useful to help all protagonists to do the most relevant choices to reach the final aim of the modeling experiment: to company the stakeholders to a more sustainable management of their social and ecological system. But this will not evade the balance of powers issue with the multiple rights that manage access and use of land.

In Senegal, land use management is based upon a wealth of legislative texts that govern different sectors. But they are elaborated separately: water code, forestry code, environment code, state domain code, statutory order organizing grazing rights, mining code... The latest is the farm-forestry-grazing law of June 2004. This intention of organizing land use relations causes problems in their applications; because

these multiple instruments are unaware of each others which create prerogative conflicts on field. For example, the Richard Toll forest is listed with a preservation order on it. But this forest with no tree, neither remarkable flora nor fauna is in the center of the commune who needs lands to build houses. Finances Ministry (with Domains Direction) and urbanism Ministry (for urbanism operations) play a part on this land. But the status of this space still gives prerogative to the Direction of Water and Forest. Here, two ministries try to manage without dialogue local resources of this land.

In the Reunion Island, even if the modern right is the main claimed, we observe a piling-up of national and European regulations to manage land uses. According to the different scales of the territory, those instruments of regulation may have varied aims from the integration of multiples uses on a same territory (SAR - regional development scheme, SCOT – territory coherence scheme) to protective measures of a singular use (urban, agricultural, environment). But people appointed to think of the application of these wealth of regulations instruments are less numerous than in metropolitan France. Thus they are over requested. Moreover, they are hybrids because they generally belong to several social groups and represent one of them according to the situation they get involved in. They can wear several hats and defend different interests according to how items are developed in the meetings they participate. But because they are involved in short-term interactions, there times is not the one of scientific thoughts. Nevertheless they are both essential to enrich the Domino Project thoughts and participants, an also as group leaders liable to initiate social changes.

From this point of view, Domino is a creation of partnership to develop tools, to manage artifacts with varied results but promising for participants. It is based on the impartiality of an entity (which is a sum of several ones smallest). This entity observes several dynamics (especially land uses ones) in order to facilitate interactions (i.e. between laws and practices) that are negotiated and accepted. As a reflection on social, political and ecological contexts, Domino process appears as an approach to integrate, build and develop new participants' skills in order to better tackle the changing environments they are involved in.

- To the target population

Stakeholders' involvement in companion modelling process may modify plays of power and be a source of tensions. As we used to initiate modelling process with resourceful persons who often hold "honorary"⁶ status, their participation to the approach could strengthen their positions and serve their interests. But it is assumed that exchange of information and social interactions developed during the process can allow usual powerless people to tackle information, to access to speech in order to participate to making-decision processes.

For example, in Senegal, we have organized a meeting to set up a restricted committee. This workshop has revealed some tensions: farmers' organizations representatives were against the participation of Rural Council presidents to this committee. This event is an expression of the tensions still existing between administration and civil society about land use access. The graft attempt of modern tenure rights on traditional systems is not a success. It is all the more a failure since juridical gaps and social relationships still explain the dysfunction of allotment previously mentioned. As The Domino project tries to tackle the issue of the future of small familial farmers in this unfavourable institutional context, the participation to the modelling process becomes a main stake!

In Reunion Island, our main issue is the future of agricultural land uses in front of constraints already presented. But the agricultural world is not homogenous. The protection of agricultural surfaces is a sharing stake but there are others which are potential source of conflict. For example, do they encourage a concentration of sugarcane farms to intensify the production and insure the continuity of the two last factories? On contrary, do they company small farmers whose activity is actually not profitable but essential to sustain a original social fabric in the upper lands? Do they encourage production niches in the area where agricultural potential is weak or do they promote the development of irrigation for bigger sugarcane farms? These issues convey power struggles actually in progress to define the Reunion

⁶ In the Weberian sense of « social honour »

agricultural development plan and appear in the co-construction of the Domino model especially in the simplifications needed.

Our ability to manage tensions is one of the main stakes with the implication of beneficiary population in the Domino project. The target population's appropriation of simulation results is one of an indicator of the project success also useful to assess social changing induced.

Conclusion

Why do we question the position of sociologists in the Domino project? First, because the modelling approach is participative. Here, participation is not a shop window answering to a brief craze of scientific microcosm! It builds up the spine of the companion plan. Participation is a sort of catalyser used to make evolved relationships with land use. It recognizes the difficulties occurring in the short-term, especially concerning the rallying of all stakeholders, the management of tensions and times. It claims also the appropriation of the approach by stakeholders and the building up of a reflection group. However, the position of sociologists in the Domino project must be clarified. He is in the same time an observer of the process in progress he analyses the social dynamic and participant to a process within he shares his knowledge. Thus, his position transcends the usual categories of sociologist's action.

Besides, by initiating potential social changes in lands allotment, in Reunion Island and in Senegal, Domino comes straight to political arena without necessary understanding the ins and outs. By working on land use, he is included in power plays within most researchers are not used to. Nevertheless, all stakeholders are aware, partially at least, of discrepancies and dysfunctions of existing management systems. There is a sort of woolliness useful to allow a certain social stability. Deficiencies concern the definition of stakeholders' interests, the expression of theirs stakes, the way they are putting in interaction in a research-development space outside traditional places where tensions are usually expressed. Deficiencies are also expressed about the normative legitimization of decisions taken by participants (in terms of moderns or traditional rights, or more simply in terms of values of concerned interest groups). The ComMod approach with its principles tries to reveal then integrate plurality and complexity of stakes. In front of such social and political stakes, the sociologist attempts to give interpretation keys to researchers and stakeholders. With researchers, he tries to help them to better tackle the context in which they play a part. With stakeholders, he endeavours to help them to stand back from their viewpoint and integrate the global nature of the system (in terms of institutional scales or in the definition of the social system concerned) in order to make the sharing of opinions easier and obtain a deal. Here, deal is not a soft consensus but it results from a collective construction in which we make attention that the unequal social positions of participants will not disturb appropriation by certain less endowed in social privileges. The approach does not aim either at reinforcing positions of the biggest land owners or at giving more power to the weakest. The objective is to initiate a fruitful dialogue for each category of participant. Nevertheless, in spite of all our precautions, we do not ignore whether such induced effects will occur or not and who will profit from it. Conscious of this problem, we attempt to minimize their eventual effects. The approach invites to act with the modelling process but also beyond.

Sociology is a scientific activity which takes naturally its place in the ComMod approach which aims at revealing, exposing varied faces of the reality. The plurality of worlds is considered in the variety of stakeholders involved, of situations lived, and stakes taken into account. The researcher's responsibility is to organize, as closer as possible that his consciousness allows him, links necessary to the equilibrium between these worlds. He weaves social relationships and contributes to the verbalization of the social system. Doing so, he becomes also a participant and develops a posture to facilitate exchange and acceptance of scientific knowledge and practices of non scientific partners. To base his scientific legitimacy, the sociologist involved needs to enlighten his double position in projects dealing with modeling of complex systems management. There is two common reproaches often realized about social sciences: on the one hand, they used to keep a distance from the social consequences of their research, on the other hand, they are deeply involved in a militant position far from the neutrality axiom (Lahire, 2004). We suggest a control involvement and a clear disciplinary foundation nourishes from an ethic of responsibility.

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